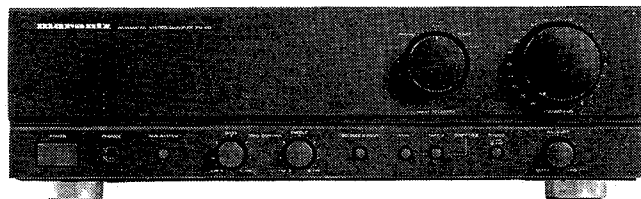


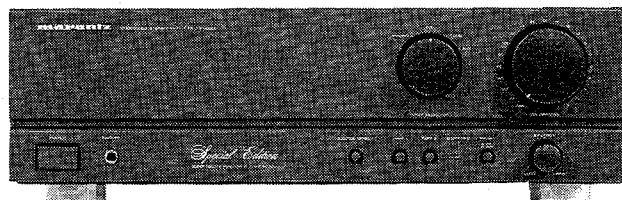
# Service Manual

**74 PM40/00B/01B/02B/05B/07B  
10B/12B/15B/17B**

**Stereo amplifier**



**PM-40**



**PM-40SE**

## TABLE OF CONTENTS

Section	Page
1. BLOCK DIAGRAM .....	2
2. SCHEMATIC DIAGRAM AND PARTS LOCATIONS (Pattern Side) .....	3
3. EXPLODED VIEW AND PARTS LIST .....	13
4. IDLING CURRENT ADJUSTMENT .....	14
5. HOW TO CHANGE THE SUPPLY VOLTAGE 01B/02B/05B/07B .....	14
6. TEST EQUIPMENT REQUIRED FOR SERVICING .....	15
7. VOLTAGE CONVERSION .....	15
8. ELECTRICAL PARTS LIST .....	16

# marantz®

## model PM-40/PM-40SE

First issue: 1990

4822 725 50913

## MARANTZ DESIGN AND SERVICE

Using superior design and selected high grade components, MARANTZ company has created the ultimate in stereo sound.

Only **original MARANTZ parts** can insure that your MARANTZ product will continue to perform to the specifications for which it is famous.

Parts for your MARANTZ equipment are generally available to our National Marantz Subsidiary or Agent.

### ORDERING PARTS:

Parts can be ordered either by mail or by telex. In both cases, correct part number has to be specified. The following information must be supplied to eliminate delays in processing your order:

1. Complete address
2. Complete part numbers and quantities required
3. Description of parts
4. Model number for which part is required
5. Way of shipment
6. Signature: any order form or telex must be signed otherwise such part order will be considered as null and void.

### MARANTZ INTERNATIONAL

Vestdijk 9  
5600 MD Eindhoven  
The Netherlands  
Phone: +31/40.758290  
Telefax: +31/40.75.82.99  
Telex: 35000 PHTC NL routing IND NLMTFAT

### PARTS ORDERING

Parts may be ordered at the following addresses:

**AUSTRIA**  
HORNYPHON  
Vertriebsgesellschaft GmbH  
Wienerbergstrasse 1  
A 1101 Wien  
Austria  
Telex: 132.332

**FINLAND**  
MARANTZ  
DIVISION OF OY PHILIPS Ab  
Kaivokatu 8  
00100 Helsinki  
Finland  
Telex: 124811

**GREAT BRITAIN**  
MARANTZ AUDIO U.K. Ltd  
Unit 15/16  
Saxon Way Industrial Estate  
Moor Lane  
Harmondsworth UB7 OLW  
Great Britain  
Telex: 935196

**SAUDI ARABIA**  
AL ALAMIAH ELECTRONICS  
P.O.Box 5954  
University Street  
Riyadh 11432  
Saudi Arabia  
Telex: 401530

**SWITZERLAND**  
MARANTZ  
Technischer Service  
Duenstrasse 3  
3186 Düringen  
Switzerland

**BELGIUM**  
SVD DIVISION MARANTZ  
Industrialaan 1  
1720 Groot-Bijgaarden  
Belgium  
Telex: 24466

**FRANCE**  
MARANTZ FRANCE  
4 Rue Bernard Palissy  
92600 Asnières  
France  
Telex: 611651

**GREECE**  
SHERTON ELECTRONICS S.A.  
P.O.Box 21025  
Hippocrates Street 188  
Athens 11471  
Greece  
Telex: 216.795

**SOUTH AFRICA**  
MARANTZ  
DIVISION OF PHILIPS S.A.  
Main Road Martindale  
P.O. Box. 58088  
Newville 21114  
South Africa

**TURKEY**  
DOGRUOL Ltd.  
I.M.C.  
6 Blok N°6310  
Unkapani  
Istanbul  
Turkey  
Telex: 22085

**CHILE**  
MARANTZ  
DIVISION OF PHILIPS S.A.  
AV. Santa Maria, 0760  
Casilla 2687  
Santiago  
Telex: 240.239

**GERMANY**  
MARANTZ GERMANY GmbH  
Alexanderstrasse 1  
2000 Hamburg  
Germany

**JAPAN**  
MARANTZ JAPAN, Inc.  
35-1, 7-chome, Sagamiono  
Sagamihara-shi, Kanagawa  
Japan

**SPAIN**  
PHONO S.A.  
Ignacio Iglesias 10  
Badalona (Barcelona)  
Spain  
Telex: 59355

**MALTA**  
CACHIA & GALEA  
Republic Street, 68D  
Valetta  
Telex: 1682

**DENMARK**  
MARANTZ  
DIVISION OF PHILIPS  
SERVICE A/S  
Prags Boulevard 80  
Postbox 1919  
DK-2300 København S  
Denmark  
Telex: 31201

**THE NETHERLANDS**  
Elpro Marantz  
Wint Hontiaan 28  
3526 KV Utrecht  
The Netherlands  
Telex: 4748

**KUWAIT**  
AL ALAMIAH ELECTRONICS  
Ussama Building  
Fahd al Saleem Street  
P.O.Box 23781  
Safat-Kuwait  
Telex: 22694

**SWEDEN**  
MARANTZ  
DIVISION OF PHILIPS  
Försäljning AB  
Tegeluddsvägen 1  
S-115 84 Stockholm  
Sweden  
Telex: 14060

**PORTUGAL**  
MARANTZ  
Divisao philips S.A. service  
Outeira-carnaxide  
2795 LinDA-A-VELHA  
Telex: 43906

**NORWAY**  
MARANTZ  
DIVISION OF PHILIPS A/S  
Sandstuveien 40  
0680 Oslo 6  
Norway  
Telex: 72640

**ITALY**  
MARANTZ ITALIANA S.P.A.  
Via Chiese, 74  
20126 Milano  
Italy

All of the above locations are fully equipped to take care of your total service needs. Because various countries have differing configuration requirements, it is necessary that you contact the service facility in your particular country. In the event that there is no service location listed for your country, please, contact the nearest facility for the necessary assistance.

In case of difficulties, do not hesitate to contact the Technical Department at abovementioned address.

TECHNICAL SPECIFICATIONS (DIN)

Power Amplifier Section

IHF Dynamic Power	
2 ohms	: 100W
4 ohms	: 80W
8 ohms	: 54W

Power Output Per Channel	
DIN 8 ohms 1 kHz 1% THD	: 48W
FTC 4 ohms 40–20 kHz 0.15% THD	: 55W
FTC 8 ohms 40–20 kHz 0.08% THD	: 43W

Total Harmonic Distortion at 8 ohms	: 0.015%
I.M. Distortion at 8 ohms	: 0.015%
Damping Factor	: 100

Phono Amplifier Section

MM Cartridge Input	
Frequency Difference	: ±0.5 dB
Signal to Noise Ratio (A weighted)	: 87 dB
Input Sensitivity	: 2.5 mV
Input Impedance	: 47k Ohms

High Level Section

Frequency Response	: 10–60 kHz
Signal to Noise Ratio (A weighted)	: 87 dB
Input Sensitivity	: 150 mV
Input Impedance	: 33k Ohms
Tape Output Level [Phono (MM) 5 mV 1 kHz Input]	: 300 mV
Tape Output Impedance (Phono)	: 220 Ohms
	: 440 Ohms (only /02B/12B version)
Tone Control Action 100 Hz	: ±6 dB
10 kHz	: ±6 dB

General

Power Requirements	
2 Voltage version	: 220V/240V
4 Voltage version	: 110V–240V

Power Consumption (Rated Power)	
AB Class Moode	: 170W
A Class Moode	: –

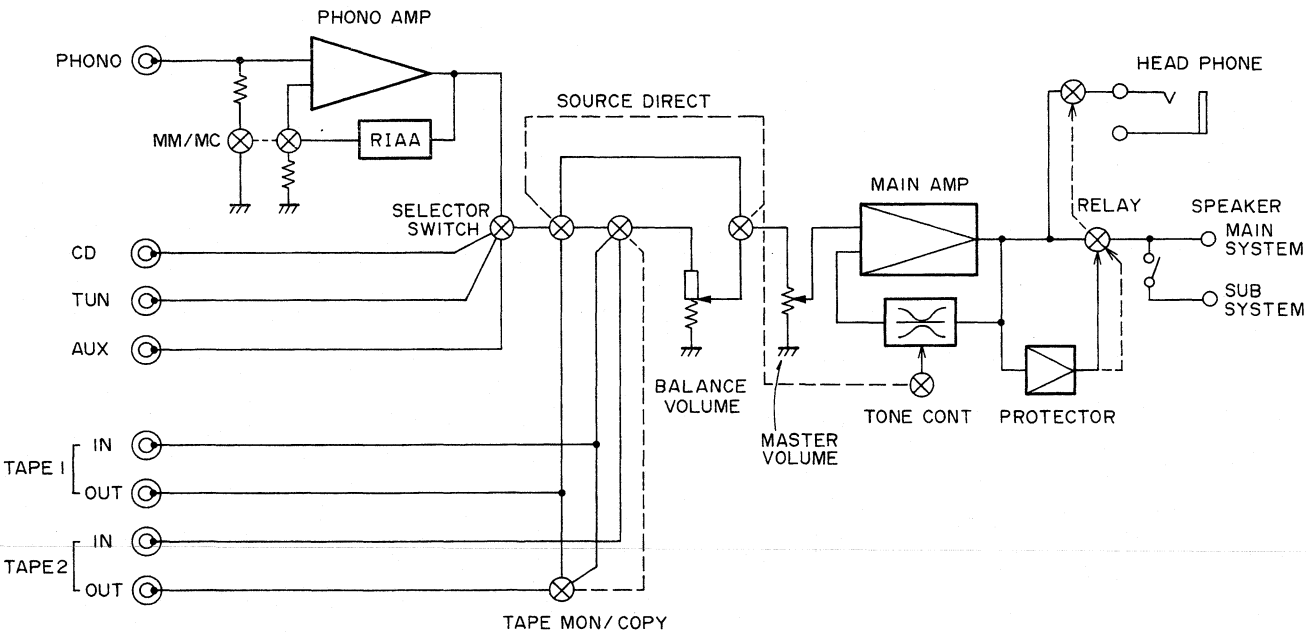
Dimensions	
Panel Width	: 420 mm
Panel Height	: 118 mm
Depth	: 280 mm

Weight	
Unit alone	: 10 kg

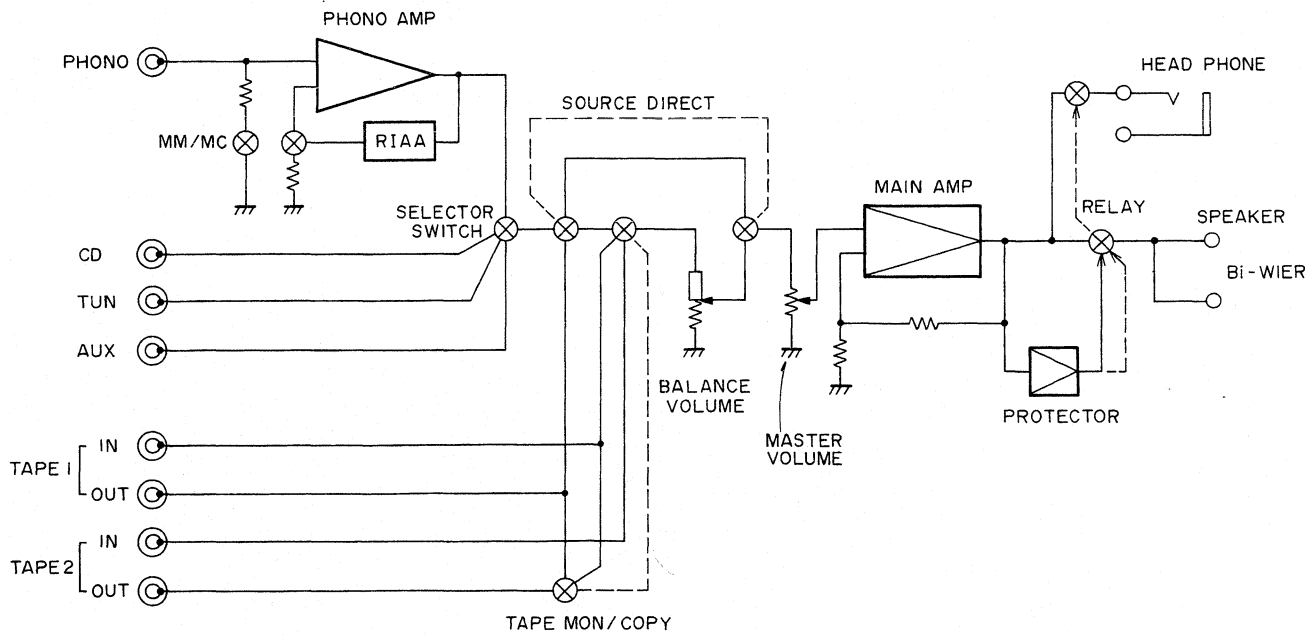
Specifications and appearance are subject to change for modification without notice.

1. BLOCK DIAGRAM

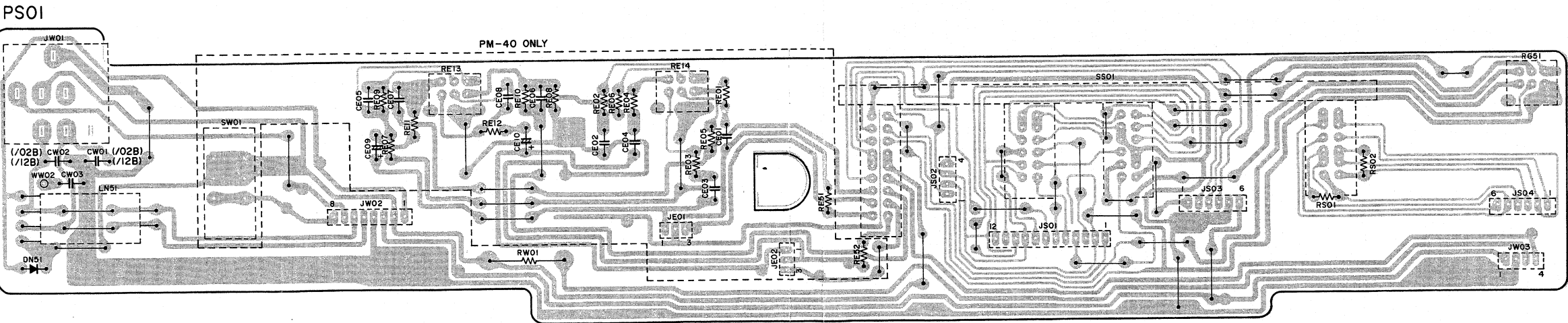
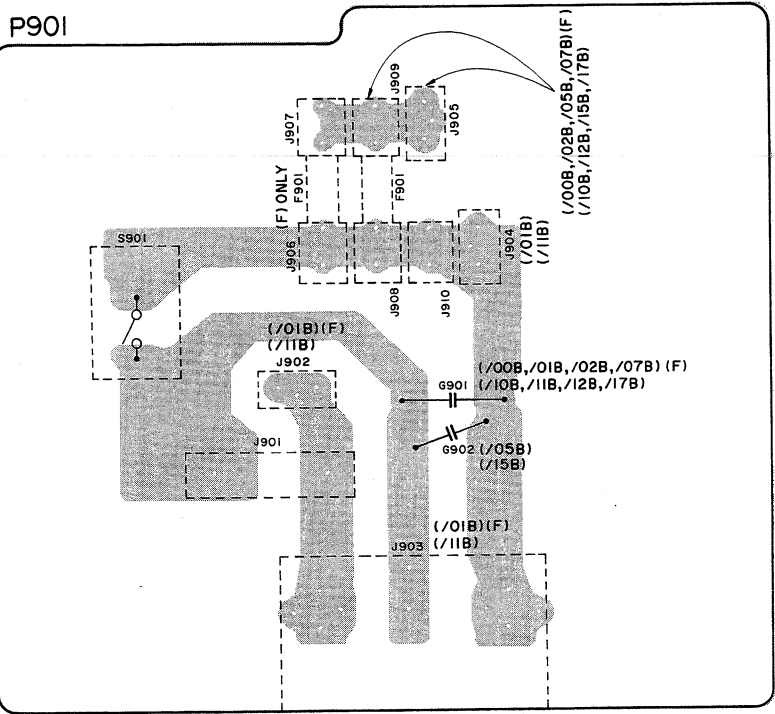
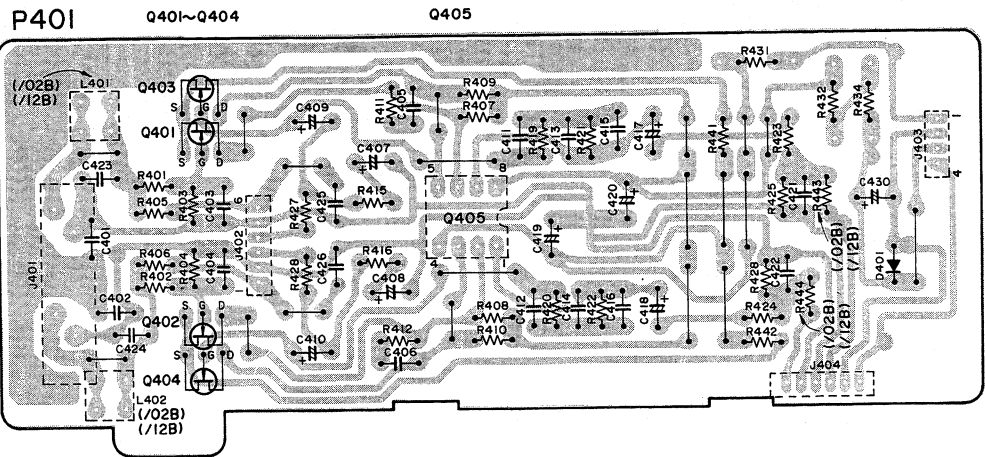
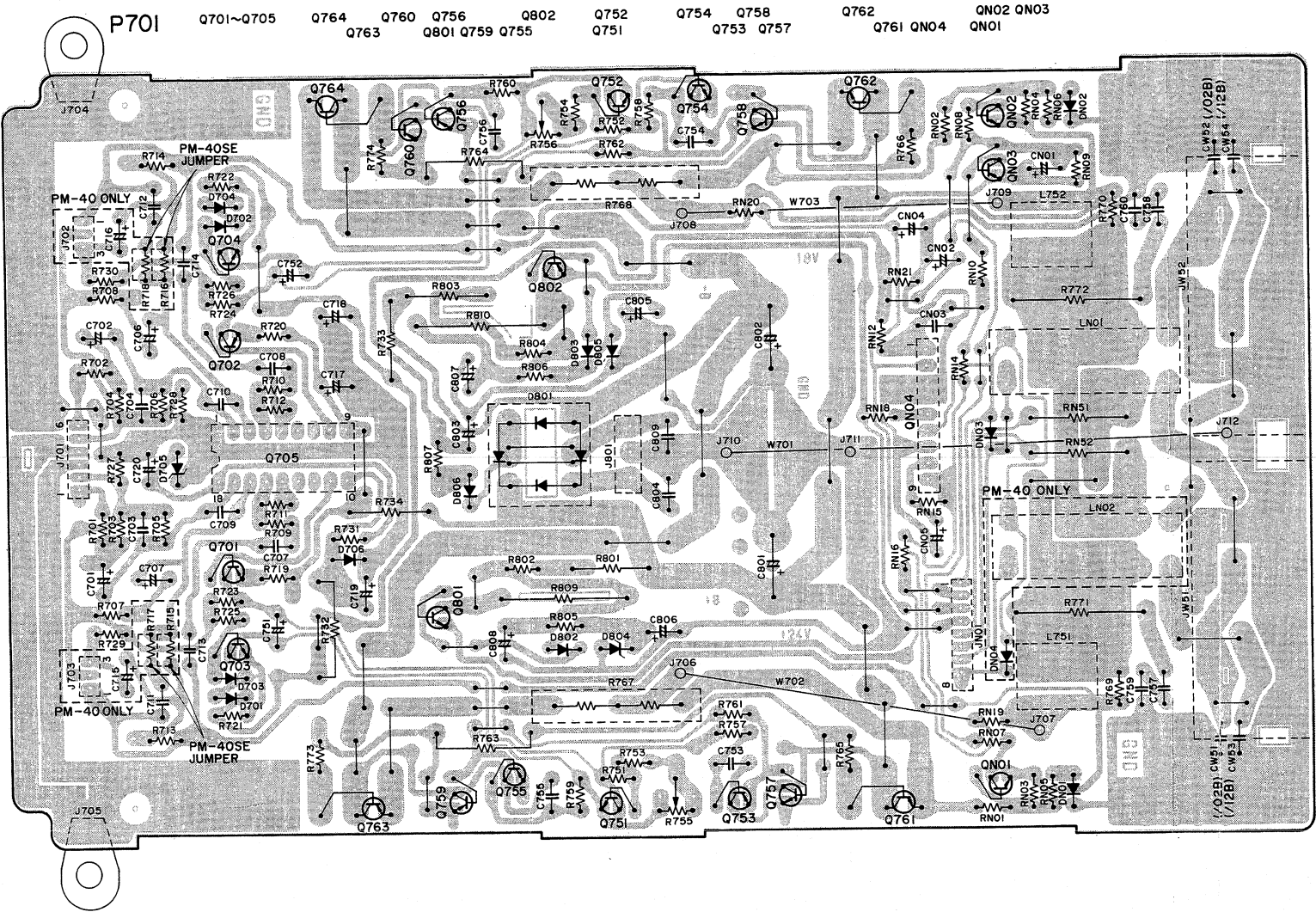
PM-40

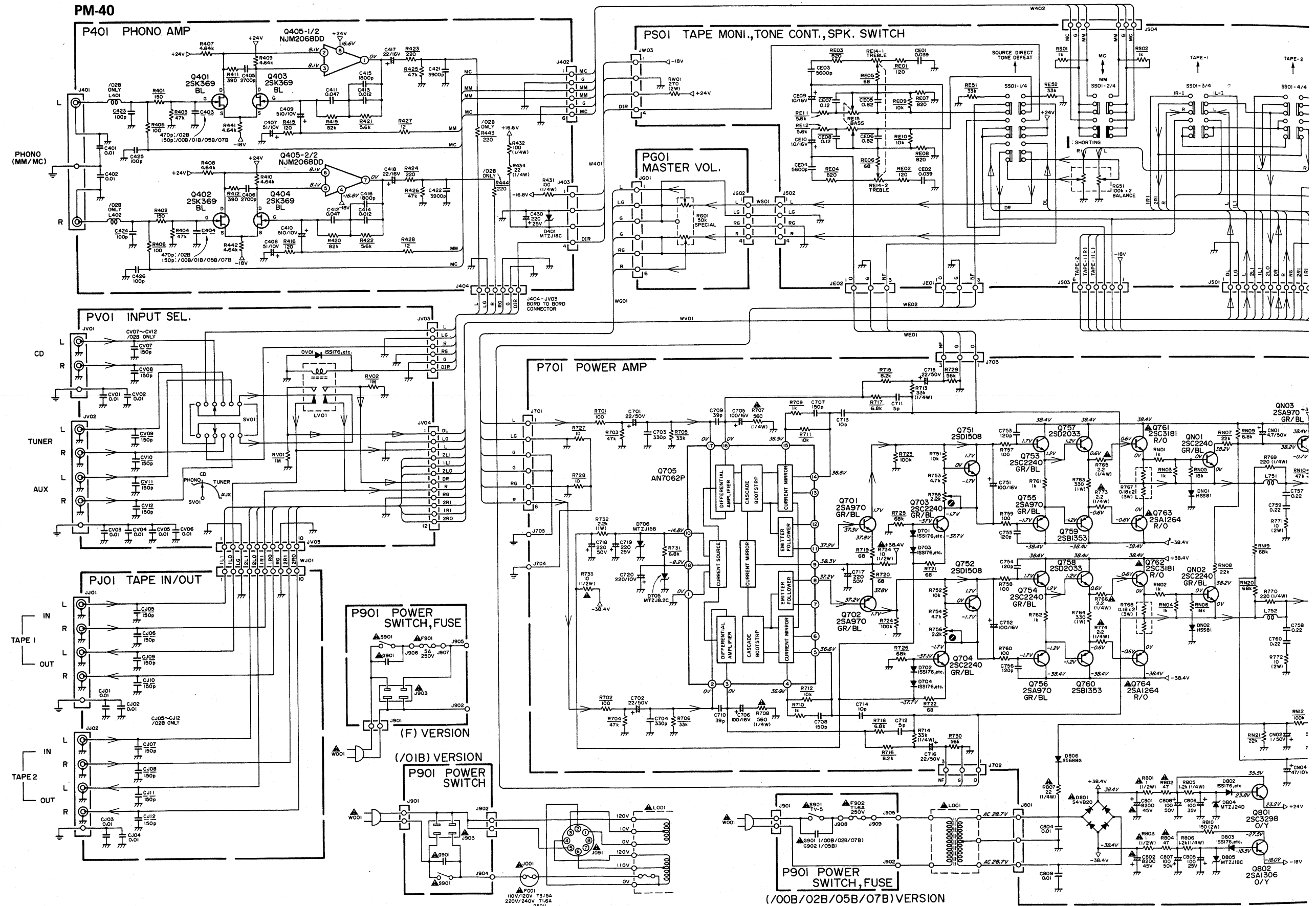


PM-40SE

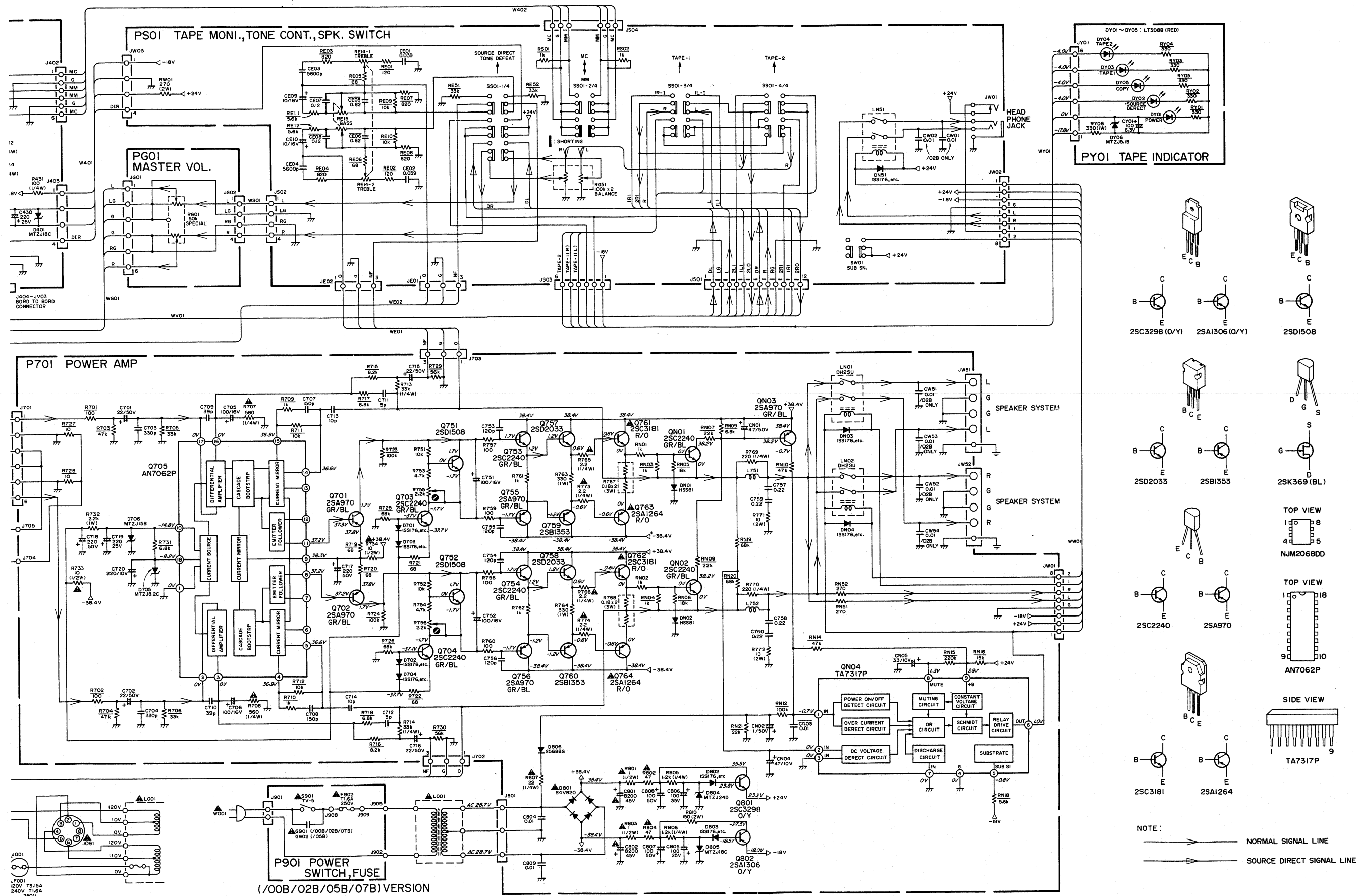


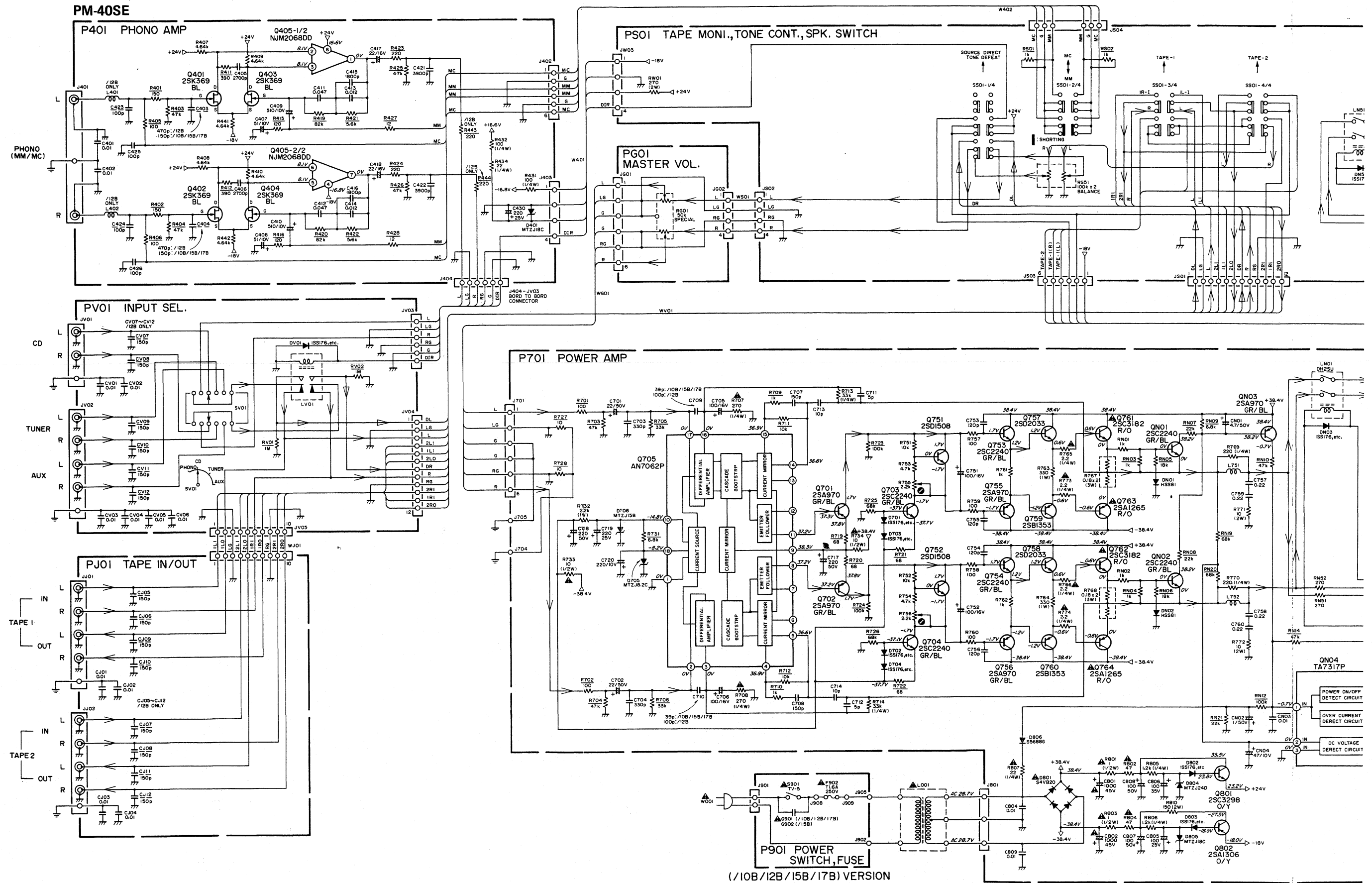
2. SCHEMATIC DIAGRAM AND PARTS LOCATION (Pattern side)

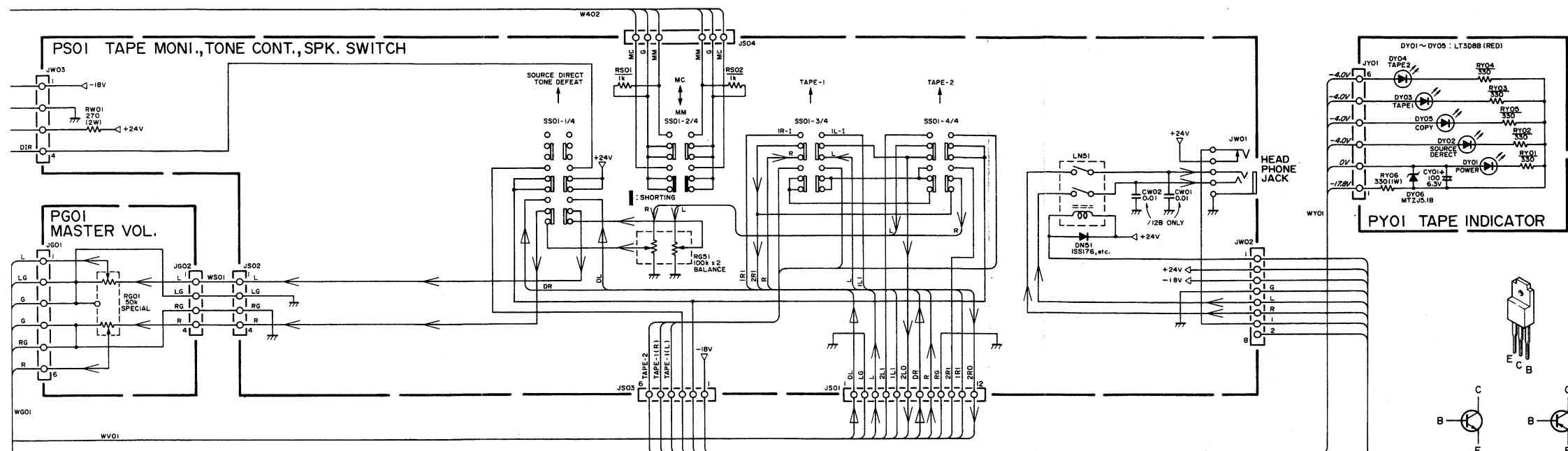




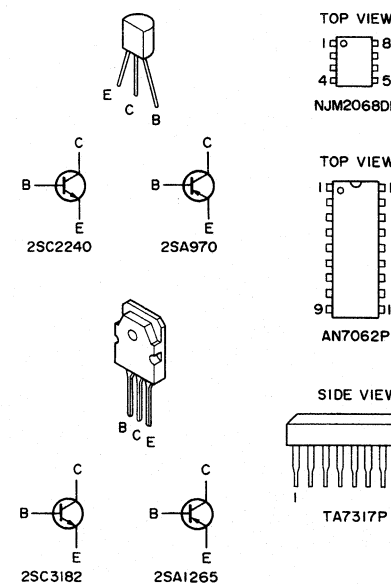
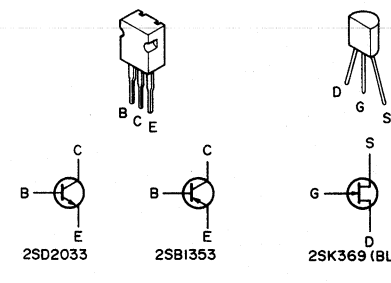
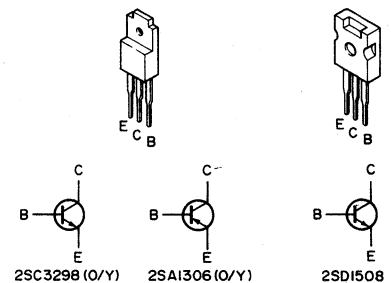
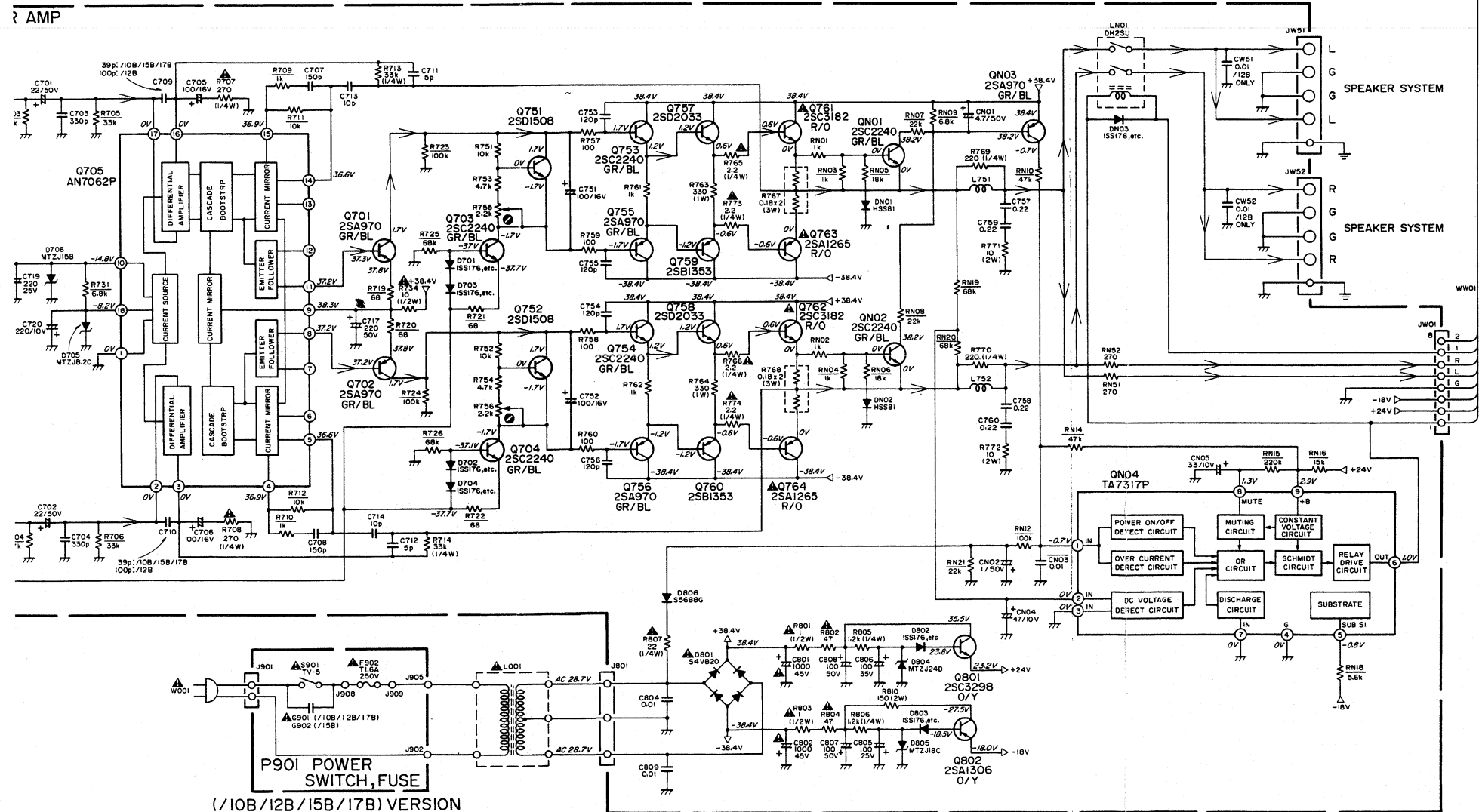








AMP

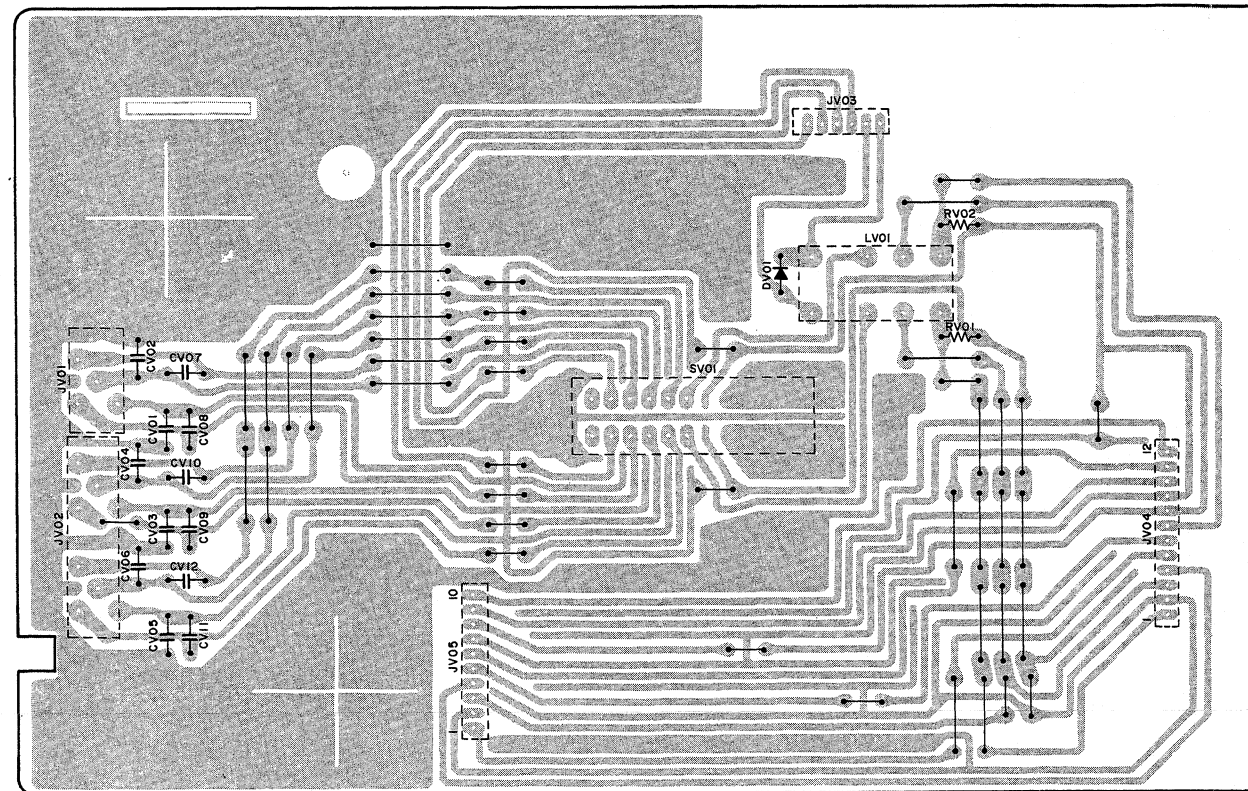


NOTE:  
 → NORMAL SIGNAL LINE  
 → SOURCE DIRECT SIGNAL LINE

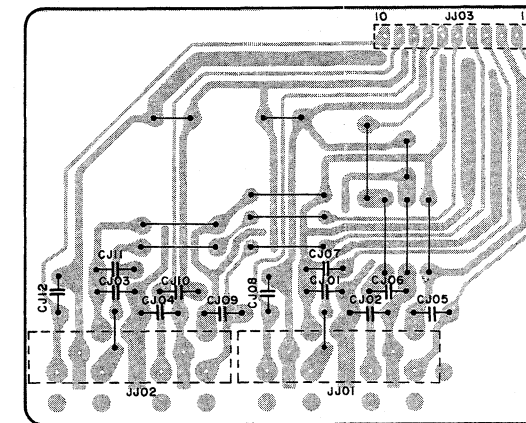
**NOTE ON SAFETY:**  
 Symbol ▲ Fire or electrical shock hazard. Only original parts should be used to replace any part marked with symbol ▲. Any other component substitution (other than original type), may increase risk of fire or electrical shock hazard.



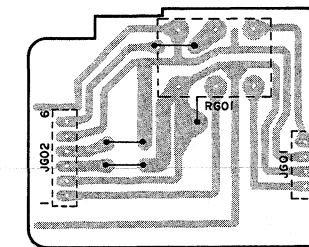
PVOI



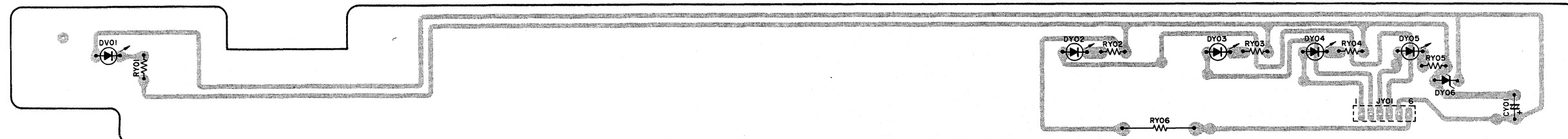
PJOI



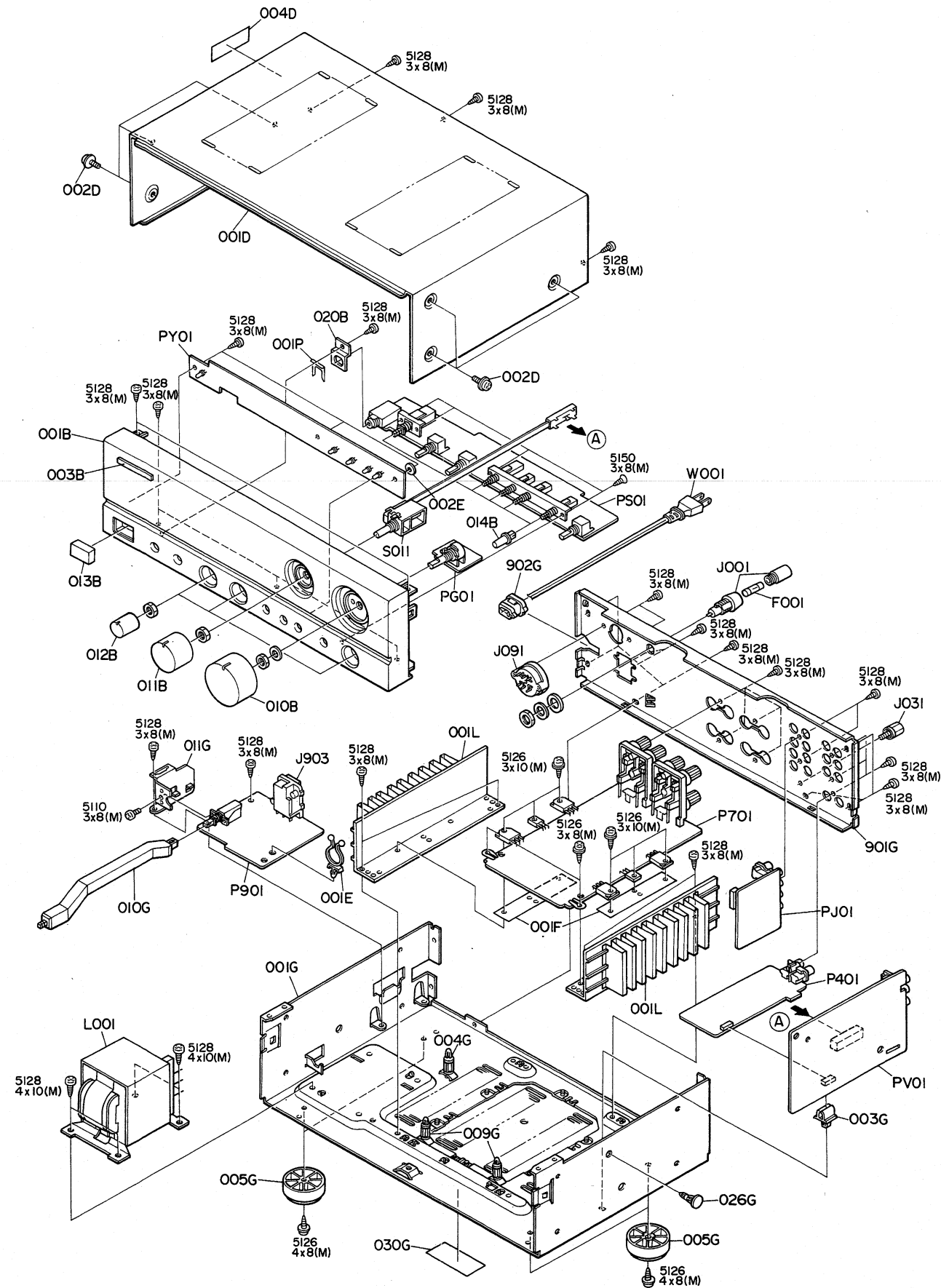
PGOI



PYOI



3. EXPLODED VIEW AND PARTS LIST



REF. DESIG.	PART NO.	DESCRIPTION
001B	4822 425 40177	Front Panel Assembly /00B/01B/02B/05B/07B
	4822 425 40178	Front Panel Assembly /10B/12B/15B/17B
003B	4822 459 10943	Badge
010B	4822 413 41544	Knob, Volume
011B	4822 413 41545	Knob, Selector
012B	4822 413 41589	Knob, Tone/Balance /00B/01B/02B/05B/07B
	4822 413 31551	Knob, Tone/Balance /10B/12B/15B/17B
013B	4822 410 60395	Button, Power
014B	4822 410 60343	Button, Speaker
002D	4822 501 11008	Screw
001F	4822 466 92914	Sheet, DENKA
005G	4822 462 41477	Leg
010G	4822 404 60628	Link, Power Switch
902G	4822 532 60948	Bushing, AC Cord /00B/01B/02B/07B/10B/12B/17B
	4822 532 61184	Bushing, AC Cord /05B/15B
001P	4822 401 11351	Clamper, Phono Jack
▲ F001	4822 253 30191	Fuse, T1.6A 250V /01B
F002	4822 253 30027	Fuse, T3.15A 250V /01B
▲ J001	4822 256 30233	Jack, Fuse Holder /01B
J031	4822 290 40297	Terminal, GND
▲ J091	4822 272 10227	Voltage Selector /01B
J092	4822 265 10092	Jack, AC Adapter /01B
▲ J903	4822 264 30313	Jack, AC Outlet
▲ L001	4822 146 21552	Power Transformer /00B/02B/05B/07B/10B/12B/15B/17B
	4822 146 21555	Power Transformer /01B
S011	4822 273 10214	Rotary Switch, Selector
001T	4822 736 20695	User Manual /00B/01B/02B/05B/07B
	4822 736 20715	User Manual /10B/12B/15B/17B

4. IDLING CURRENT ADJUSTMENT

- Before switching the power ON, set the Master Volume control to the minimum position and the Balance and Tone controls to the center positions. Also set semi-fixed resistors R755 (L CH) and R756 (R CH) on PCB P701 to the center positions.
- Each of the cement resistors R767 (L CH) and R768 (R CH) on the PCB P701 is provided with three test points. Connect a digital voltmeter, set for the DC voltage input, to the test points at the two extremities of the three test points of R767 or R768.
- After the setup above, switch the power ON and adjust semi-fixed resistor R755 (L CH) or R756 (R CH) on PCB P701 according to the digital voltmeter reading. The target setting value is 14 mV (38.9 mA) for both the L CH and R CH.

Please refer to the table below.

Elapsed time after power ON	Idling current setting value
30 sec. — 1 min.	5 mV
1 min. — 2 min.	8 mV
2 min. — 4 min.	10.5 mV
More than 4 min.	14 mV

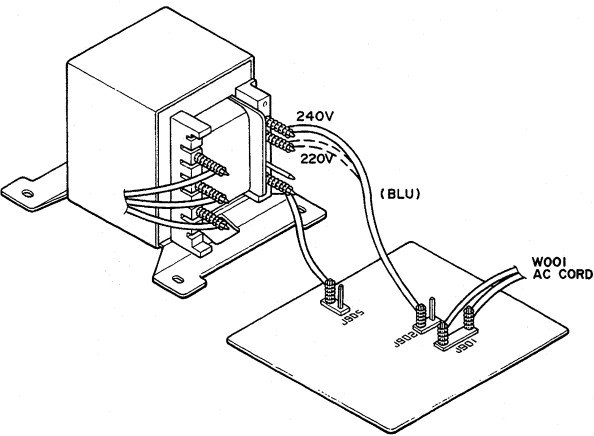
Note on Safety:

Symbol ▲ Fire or electrical shock hazard. Only original parts should be used to replace any part marked with symbol ▲. Any other component substitution (other than original type), may increase risk of fire or electrical shock hazard.

5. HOW TO CHANGE THE SUPPLY VOLTAGE (/00B/02B/05B/07B/10B/12B/15B/17B Versions)

With the /05B/07B/15B/17B Versions, the rated supply voltage of 240V can be changed to 220V. In the same way, the 220V rated supply voltage of the /00B/02B/10B/12B Versions can be changed to 240V.

Refer to the following diagram for the voltage change procedure.



## 6. TEST EQUIPMENT REQUIRED FOR SERVICING

This table lists the test equipment required for servicing

Item	Use
Distortion Analyzer	Distortion measurements
Audio Oscillator	Sinewave and squarewave signal source
ACVTVM	Voltage measurements (AC)
Oscilloscope	Waveform analysis and trouble shooting and ASO aignment
Circuit Tester	Trouble shooting
DCVTVM	Voltage measurements (DC)
AC Wattmeter	Monitors primary power to amplifier
Line Voltmeter	Monitors potential of primary power to amplifier
Variable Autotransformer	Adjust level of primery power to amplifier
Shorting Plug	Shorts amplifier input to eliminate noise pickup

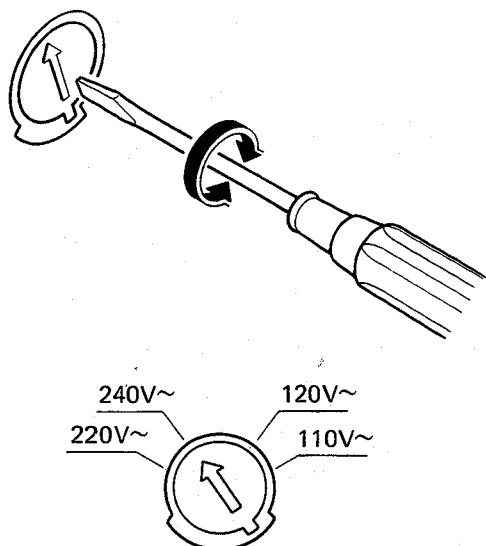
## 7. VOLTAGE CONVERSION

### • EUROPEAN MODEL ONLY

To convert the unit to a different power source voltage, change the position as illustrated in the drawing below.

### VOLTAGE SELECTOR

**CAUTION**  
DISCONNECT POWER SUPPLY CORD FROM AC  
OUTLET BEFORE CONVERTING VOLTAGE.



## 8. ELECTRICAL PARTS LIST

### ASSIGNMENT OF COMMON PARTS CODES.

#### RESISTOR

**R\*\*\*:** (1) GD05 --- 140, Carbon film fixed resistor,  $\pm 5\%$ , 1/4W  
**R\*\*\*:** (2) GD05 --- 160, Carbon film fixed resistor,  $\pm 5\%$ , 1/6W

① — Resistance value

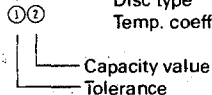
#### Examples

① Resistance value				
0.1 $\Omega$ ...001	10 $\Omega$ ...100	1k $\Omega$ ...102	100k $\Omega$ ...104	
0.5 $\Omega$ ...005	18 $\Omega$ ...180	2.7k $\Omega$ ...272	680k $\Omega$ ...684	
1 $\Omega$ ...010	100 $\Omega$ ...101	10k $\Omega$ ...103	1M $\Omega$ ...105	
6.8 $\Omega$ ...068	390 $\Omega$ ...391	22k $\Omega$ ...223	4.7M $\Omega$ ...475	

(Note) Please distinguish 1/4W from 1/6W by the shape of parts used actually.

#### C\*\*\*: CERAMIC CAP.

(1) DD1 --- 370, Ceramic condenser  
 Disc type  
 Temp. coeff. P350 ~ N1000, 50V



#### Examples

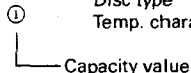
① Tolerance (Capacity deviation)	
$\pm 0.25\text{pF}$ ...0	
$\pm 0.5\text{pF}$ ...1	
$\pm 5\%$ ...5	

\* Tolerance of COMMON PARTS handled here are as follows:

0.5pF ~ 5pF... $\pm 0.25\text{pF}$		
6pF ~ 10pF... $\pm 0.5\text{pF}$		
12pF ~ 560pF... $\pm 5\%$		
② Capacity value		
0.5pF...005	3pF...030	100pF...101
1pF...010	10pF...100	220pF...221
1.5pF...015	47pF...470	560pF...561

#### C\*\*\*: CERAMIC CAP.

(1) DK16 --- 300, High dielectric constant ceramic condenser  
 Disc type  
 Temp. chara. 2B4, 50V

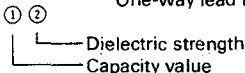


#### Example

② Capacity value			
100pF...101	1000pF...102	10000pF...103	
470pF...471	2200pF...222		

#### C\*\*\*: ELECTROLY CAP. ( $\frac{\square}{\square}$ ), FILM CAP. ( $\frac{\square}{\square}$ )

(1) EA --- 10, Electrolytic condenser  
 One-way lead type, Tolerance  $\pm 20\%$

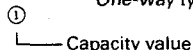


#### Examples

① Capacity value			
0.1 $\mu\text{F}$ ...104	4.7 $\mu\text{F}$ ...475	100 $\mu\text{F}$ ...107	
0.33 $\mu\text{F}$ ...334	10 $\mu\text{F}$ ...106	330 $\mu\text{F}$ ...337	
1 $\mu\text{F}$ ...105	22 $\mu\text{F}$ ...226	1100 $\mu\text{F}$ ...108	
		2200 $\mu\text{F}$ ...228	

② Working voltage		
6.3V...006	25V...025	
10V...010	35V...035	
16V...016	50V...050	

(2) DF15 --- 350, Plastic film condenser  
 One-way type, Mylar  $\pm 5\%$  50V



#### Examples

① Capacity value		
0.001 $\mu\text{F}$ (1000pF)...102	0.1 $\mu\text{F}$ ...104	
0.0018 $\mu\text{F}$ ...182	0.56 $\mu\text{F}$ ...564	
0.01 $\mu\text{F}$ ...103	1 $\mu\text{F}$ ...105	
0.015 $\mu\text{F}$ ...153		

REF. DESIG.	PART NO.	DESCRIPTION
		<b>PG01-MASTER VOLUME CIRCUIT BOARD</b>
RG01	4822 101 30653	Variable Resistor 50K $\Omega$
		<b>PJ01-TAPE IN/OUT CIRCUIT BOARD</b>
CJ01 ? CJ04	4822 122 32486	Ceramic Cap. 0.01 $\mu\text{F}$ +80% -20%
JJ01	4822 266 30284	Terminal, 4P RCA
JJ02	4822 266 30284	Terminal, 4P RCA
		<b>PS01-TAPE/TONE/SPK. CIRCUIT BOARD</b>
CE01	4822 121 43133	Film Cap. 0.039 $\mu\text{F}$ $\pm 5\%$ /00B/01B/02B/05B/07B
CE02	4822 121 43133	Film Cap. 0.039 $\mu\text{F}$ $\pm 5\%$ /00B/01B/02B/05B/07B
CE03	4822 121 51389	Film Cap. 5600pF $\pm 5\%$ /00B/01B/02B/05B/07B
CE04	4822 121 51389	Film Cap. 5600pF $\pm 5\%$ /00B/01B/02B/05B/07B
CE09	4822 124 90352	Elect Cap. 10 $\mu\text{F}$ 16V /00B/01B/02B/05B/07B
CE10	4822 124 90352	Elect Cap. 10 $\mu\text{F}$ 16V /00B/01B/02B/05B/07B
CW01	4822 122 32486	Ceramic 0.01 $\mu\text{F}$ +80% -20% /02B/12B
CW02	4822 122 32486	Ceramic 0.01 $\mu\text{F}$ +80% -20% /02B/12B
RE13	4822 100 30139	Variable Resistor 50K $\Omega$ (C) /00B/01B/02B/05B/07B
RE14	4822 100 30139	Variable Resistor 50K $\Omega$ (C) /00B/01B/02B/05B/07B
RG51	4822 100 30138	Variable Resistor 100K $\Omega$ (MN)
RW01	4822 116 60455	Metal Resistor 270 $\Omega$ $\pm 5\%$ 2W
DN51	4822 130 33305	Diode 1SS176, etc.
JW01	4822 267 31227	Jack, Headphone /00B/01B/02B/05B/07B
	4822 267 31229	Jack, Headphone /10B/12B/15B/17B
LN51	4822 280 20196	Relay
SS01	4822 276 12197	Push Switch
SW01	4822 276 12218	Push Switch /00B/01B/02B/05B/07B
		<b>PV01-INPUT SELECTOR CIRCUIT BOARD</b>
CV01 ? CV06	4822 122 32486	Ceramic Cap. 0.01 $\mu\text{F}$ +80% -20%
DV01	4822 130 33305	Diode 1SS176, etc.
JV01	4822 266 30282	Terminal, 2P RCA
JV02	4822 266 30284	Terminal, 4P RCA
LV01	4822 280 20195	Relay, SZ-2104
SV01	4822 277 21412	Slide Switch, Selector

REF. DESIG.	PART NO.	DESCRIPTION
		<b>PY01-TAPE INDICATOR CIRCUIT BOARD</b>
CY01	4822 124 21737	Elect Cap. 100 $\mu$ F 6.3V
RY06	4822 111 50474	Resistor 330 $\Omega$ $\pm$ 5%
DY01 } DY05 DY06	4822 130 80326	L.E.D. LT3D8B (RED)
	4822 130 80317	Zener Diode RD5.1JB2/MTZJ5.1B
		<b>P401-PHONO AMP. CIRCUIT BOARD</b>
		<b>P401-CAPACITORS</b>
C401	4822 122 32486	Ceramic 0.01 $\mu$ F +80% -20%
C402	4822 122 32486	Ceramic 0.01 $\mu$ F +80% -20%
C403	4822 126 11069	Ceramic 150pF $\pm$ 10%
		/00B/01B/05B/07B
C403	4822 121 51037	Film 150pF $\pm$ 5% /10B/15B/17B
C404	4822 126 11069	Ceramic 150pF $\pm$ 10%
		/00B/01B/05B/07B
C404	4822 121 51037	Film 150pF $\pm$ 5% /10B/15B/17B
C405	4822 121 42761	Film 2700pF $\pm$ 5%
C406	4822 121 42761	Film 2700pF $\pm$ 5%
C407	4822 124 22278	Elect 51 $\mu$ F 10V
C408	4822 124 22278	Elect 51 $\mu$ F 10V
C409	4822 124 22279	Elect 510 $\mu$ F 10V
C410	4822 124 22279	Elect 510 $\mu$ F 10V
C411	4822 121 42764	Film 0.047 $\mu$ F $\pm$ 5%
C412	4822 121 42764	Film 0.047 $\mu$ F $\pm$ 5%
C413	4822 121 42755	Film 0.012 $\mu$ F $\pm$ 5%
C414	4822 121 42755	Film 0.012 $\mu$ F $\pm$ 5%
C415	4822 121 42758	Film 1800pF $\pm$ 5%
C416	4822 121 42758	Film 1800pF $\pm$ 5%
C417	4822 124 90358	Elect 22 $\mu$ F 16V
C418	4822 124 90358	Elect 22 $\mu$ F 16V
C419	4822 124 90365	Elect 220 $\mu$ F 25V
C420	4822 124 90365	Elect 220 $\mu$ F 25V
C421	4822 121 42763	Film 3900pF $\pm$ 5%
C422	4822 121 42763	Film 3900pF $\pm$ 5%
C430	4822 124 90365	Elect 220 $\mu$ F 25V
		<b>P401-RESISTORS</b>
R407 } R410 R431 R432 R434 R441 R442	4822 116 53691	4.64K $\Omega$ $\pm$ 1% 1/6W
		100 $\Omega$ $\pm$ 5% 1/4W
		100 $\Omega$ $\pm$ 5% 1/4W
		22 $\Omega$ $\pm$ 5% 1/4W
		4.64K $\Omega$ $\pm$ 1% 1/6W
		4.64K $\Omega$ $\pm$ 1% 1/6W
		<b>P401-SEMICONDUCTORS</b>
D401	4822 130 80838	Zener RD18JB2/MTZJ18C
Q401 } Q404 Q405	4822 130 42839	F.E.T. 2SK369(BL)
	4822 209 73064	IC NJM2068DD
		<b>P401-MISCELLANEOUS</b>
J401	4822 265 20355	Terminal, 2P RCA
L401 L402	4822 156 11019	Choke Coil, 320 $\mu$ H [/02B/12B]
	4822 156 11019	Choke Coil, 320 $\mu$ H [/02B/12B]

REF. DESIG.	PART NO.	DESCRIPTION
		<b>P701-POWER AMP. CIRCUIT BOARD</b>
		<b>P701-CAPACITORS</b>
CN01	4822 124 22274	Elect 4.7 $\mu$ F 50V
CN02	4822 124 41543	Elect 1 $\mu$ F 50V
CN04	4822 124 22275	Elect 47 $\mu$ F 10V
CN05	4822 124 23417	Elect 33 $\mu$ F 10V
CW51	4822 122 32486	Ceramic 0.01 $\mu$ F +80% -20% [/02B/12B]
CW52	4822 122 32486	Ceramic 0.01 $\mu$ F +80% -20% [/02B/12B]
CW53	4822 122 32486	Ceramic 0.01 $\mu$ F +80% -20% [/02B]
CW54	4822 122 32486	Ceramic 0.01 $\mu$ F +80% -20% [/02B]
C701	4822 124 90362	Elect 22 $\mu$ F 50V
C702	4822 124 90362	Elect 22 $\mu$ F 50V
C703	4822 126 11071	Ceramic 330pF $\pm$ 10%
C704	4822 126 11071	Ceramic 330pF $\pm$ 10%
C705	4822 124 90354	Elect 100 $\mu$ F 16V
C706	4822 124 90354	Elect 100 $\mu$ F 16V
C707	4822 121 51037	Film 150pF $\pm$ 5%
C708	4822 121 51037	Film 150pF $\pm$ 5%
C709	4822 126 11068	Ceramic 39pF $\pm$ 5%
		/00B/01B/05B/07B
	4822 126 10364	Ceramic 100pF $\pm$ 5%
		/02B/12B
	4822 121 43135	Film 30pF $\pm$ 10%
		/10B/15B/17B
C710	4822 126 11068	Ceramic 39pF $\pm$ 5%
		/00B/01B/05B/07B
	4822 126 10364	Ceramic 100pF $\pm$ 5%
		/02B/12B
	4822 121 43135	Film 30pF $\pm$ 10%
		/10B/15B/17B
C711	4822 121 43127	Film 5pF $\pm$ 10%
C712	4822 121 43127	Film 5pF $\pm$ 10%
C713	4822 121 43128	Film 10pF $\pm$ 10%
C714	4822 121 43128	Film 10pF $\pm$ 10%
C715	4822 124 90362	Elect 22 $\mu$ F 50V
		/00B/01B/02B/05B/07B
C716	4822 124 90362	Elect 22 $\mu$ F 50V
		/00B/01B/02B/05B/07B
C717	4822 124 90366	Elect 220 $\mu$ F 50V
C718	4822 124 90366	Elect 220 $\mu$ F 50V
C719	4822 124 90365	Elect 220 $\mu$ F 25V
C720	4822 124 90363	Elect 220 $\mu$ F 10V
C751	4822 124 90354	Elect 100 $\mu$ F 16V
C752	4822 124 90354	Elect 100 $\mu$ F 16V
C753	4822 121 43126	Film 120pF $\pm$ 5%
C754	4822 121 43126	Film 120pF $\pm$ 5%
C755	4822 121 43126	Film 120pF $\pm$ 5%
C756	4822 121 43126	Film 120pF $\pm$ 5%
▲ C801	4822 124 42042	Elect 8200 $\mu$ F 45V /00B/01B/02B/05B/07B
▲ C801	4822 124 42043	Elect 10000 $\mu$ F 45V /10B/12B/15B/17B
▲ C802	4822 124 42042	Elect 8200 $\mu$ F 45V /00B/01B/02B/05B/07B
▲ C802	4822 124 42043	Elect 10000 $\mu$ F 45V /10B/12B/15B/17B
C804	4822 122 32486	Ceramic 0.01 $\mu$ F +80% -20%
C805	4822 124 41535	Elect 100 $\mu$ F 25V
C806	4822 124 41536	Elect 100 $\mu$ F 35V
C807	4822 124 90355	Elect 100 $\mu$ F 50V
C808	4822 124 90355	Elect 100 $\mu$ F 50V
C809	4822 122 32486	Ceramic 0.01 $\mu$ F +80% -20%



REF. DESIG.	PART NO.	DESCRIPTION		
P701-RESISTORS				
RN01	4822 111 91257	1K $\Omega$	$\pm 5\%$	1/6W
RN02	4822 111 91257	1K $\Omega$	$\pm 5\%$	1/6W
RN51	4822 116 60455	270 $\Omega$	$\pm 5\%$	2W, Metal
RN52	4822 116 60455	270 $\Omega$	$\pm 5\%$	2W, Metal
▲ R707	4822 113 90231	560 $\Omega$	$\pm 2\%$	¼W, Fuse
[/02B/05B]				
▲ R707	4822 116 80828	270 $\Omega$	$\pm 2\%$	¼W [/12B/15B]
▲ R708	4822 113 90231	560 $\Omega$	$\pm 2\%$	¼W, Fuse
[/02B/05B]				
▲ R708	4822 116 80828	270 $\Omega$	$\pm 2\%$	¼W [/12B/15B]
R713	4822 050 23303	33K $\Omega$	$\pm 5\%$	¼W
R714	4822 050 23303	33K $\Omega$	$\pm 5\%$	¼W
R732	4822 116 60346	2.2K $\Omega$	$\pm 5\%$	1W
▲ R733	4822 116 60313	10 $\Omega$	$\pm 5\%$	½W, Fusible
▲ R734	4822 116 60313	10 $\Omega$	$\pm 5\%$	½W, Fusible
R755	4822 100 20681	2.2K $\Omega$ , Trimming		
R756	4822 100 20681	2.2K $\Omega$ , Trimming		
R757	4822 111 91285	100 $\Omega$	$\pm 5\%$	1/6W
R758	4822 111 91285	100 $\Omega$	$\pm 5\%$	1/6W
R759	4822 111 91285	100 $\Omega$	$\pm 5\%$	1/6W
R760	4822 111 91285	100 $\Omega$	$\pm 5\%$	1/6W
R761	4822 111 91257	1K $\Omega$	$\pm 5\%$	1/6W
R762	4822 111 91257	1K $\Omega$	$\pm 5\%$	1/6W
R763	4822 111 50474	330 $\Omega$	$\pm 5\%$	1W
R764	4822 111 50474	330 $\Omega$	$\pm 5\%$	1W
▲ R765	4822 116 52348	2.2 $\Omega$	$\pm 5\%$	¼W
▲ R766	4822 116 52348	2.2 $\Omega$	$\pm 5\%$	¼W
R767	4822 116 82049	0.18 $\Omega$ x2	$\pm 10\%$	3W
R768	4822 116 82049	0.18 $\Omega$ x2	$\pm 10\%$	3W
R769	4822 116 52849	220 $\Omega$	$\pm 5\%$	¼W
R770	4822 116 52849	220 $\Omega$	$\pm 5\%$	¼W
R771	4822 111 90726	10 $\Omega$	$\pm 5\%$	2W
R772	4822 111 90726	10 $\Omega$	$\pm 5\%$	2W
▲ R773	4822 116 52348	2.2 $\Omega$	$\pm 5\%$	¼W
▲ R774	4822 116 52348	2.2 $\Omega$	$\pm 5\%$	¼W
▲ R801	4822 116 60306	1 $\Omega$	$\pm 5\%$	½W, Fusible
▲ R802	4822 111 90731	47 $\Omega$	$\pm 2\%$	¼W, Fuse
▲ R803	4822 116 60306	1 $\Omega$	$\pm 5\%$	½W, Fusible
▲ R804	4822 111 90731	47 $\Omega$	$\pm 2\%$	¼W, Fuse
R805	4822 111 91423	1.2K $\Omega$	$\pm 5\%$	¼W
R806	4822 111 91423	1.2K $\Omega$	$\pm 5\%$	¼W
▲ R807	4822 113 90119	22 $\Omega$	$\pm 2\%$	¼W, Fuse
R810	4822 116 60338	150 $\Omega$	$\pm 5\%$	2W
P701-SEMICONDUCTORS				
DN01	4822 130 80837	Diode	HSS81	
DN02	4822 130 80837	Diode	HSS81	
DN03	4822 130 33305	Diode	1SS176, etc.	
DN04	4822 130 33305	Diode	1SS176, etc.	
D701	4822 130 33305	Diode	1SS176, etc.	
7				
D704				
D705	4822 130 80273	Zener	RD8.2JB2/MTZJ8.2C	
D706	4822 130 80322	Zener	RD15JB1/MTZJ15B	
▲ D801	4822 130 31007	Diode	S4VB-20	
D802	4822 130 33305	Diode	1SS176, etc.	
D803	4822 130 33305	Diode	1SS176, etc.	
D804	4822 130 80116	Zener	RD24JB2/MTZJ24D	
D805	4822 130 80838	Zener	RD18JB2/MTZJ18C	
▲ D806	4822 130 80839	Diode	S5688G	
QN01	4822 130 43233	Transistor	2SC2240(GR, BL)	
QN02	4822 130 43233	Transistor	2SC2240(GR, BL)	
QN03	4822 130 42951	Transistor	2SA970(GR, BL)	
QN04	4822 290 83312	IC	TA7317P	

REF. DESIG.	PART NO.	DESCRIPTION	
Q701	4822 130 42951	Transistor	2SA970(GR, BL)
Q702	4822 130 42951	Transistor	2SA970(GR, BL)
Q703	4822 130 43233	Transistor	2SC2240(GR, BL)
Q704	4822 130 43233	Transistor	2SC2240(GR, BL)
Q705	4822 209 83732	IC	AN7062P
Q751	4822 130 60526	Transistor	2SD1508
Q752	4822 130 60526	Transistor	2SD1508
Q753	4822 130 43233	Transistor	2SC2240(GR, BL)
Q754	4822 130 43233	Transistor	2SC2240(GR, BL)
Q755	4822 130 42951	Transistor	2SA970(GR, BL)
Q756	4822 130 42951	Transistor	2SA970(GR, BL)
Q757	4822 130 62335	Transistor	2SD2033(E)
Q758	4822 130 62335	Transistor	2SD2033(E)
Q759	4822 130 62334	Transistor	2SB1353(E)
Q760	4822 130 62334	Transistor	2SB1353(E)
▲ Q761	4822 130 61319	Transistor	2SC3181(R, O)
	4822 130 61747	Transistor	2SC3182N(R, O)
▲ Q762	4822 130 61319	Transistor	2SC3181(R, O)
	4822 130 61747	Transistor	2SC3182N(R, O)
▲ Q763	4822 130 43018	Transistor	2SA1264(R, O)
	4822 130 61746	Transistor	2SA1265N(R, O)
▲ Q764	4822 130 43018	Transistor	2SA1264(R, O)
	4822 130 61746	Transistor	2SA1265N(R, O)
Q801	4822 130 43311	Transistor	2SC3298(O, Y)
Q802	4822 130 43023	Transistor	2SA1306(O, Y)
<b>P701-MISCELLANEOUS</b>			
JW51	4822 290 60837	Terminal, Speaker	[/00B/01B/05B/07B/10B/11B/15B/17B]
JW51	4822 290 60841	Terminal, Speaker	/02B/12B
JW52	4822 290 60836	Terminal, Speaker	[/00B/01B/05B/07B/10B/11B/15B/17B]
JW52	4822 290 60839	Terminal, Speaker	/02B/12B
LN01	4822 280 20197	Relay, DH2SU	
LN02	4822 280 20197	Relay, DH2SU	/00B/01B/02B/05B/07B
L751	4822 157 51739	Coil, Speaker	
L752	4822 157 51739	Coil, Speaker	
<b>P901-POWER SWITCH CIRCUIT BOARD</b>			
▲ F902	4822 253 30191	Fuse	5A 250V
▲ G901	4822 121 43732	Film Cap.	0.01 $\mu$ F $\pm 20\%$
▲ G902	4822 122 33276	Ceramic Cap.	0.01 $\mu$ F $\pm 20\%$
▲ J903	4822 264 30313	Jack, AC Outlet	/01B
▲ S901	4822 276 11654	Push Switch, Power	

#### NOTE ON SAFETY:

Symbol ▲ Fire or electrical shock hazard. Only original parts should be used to replace any part marked with symbol ▲. Any other component substitution (other than original type), may increase risk of fire or electrical shock hazard.